New Zealand Molluscan Systematics, with Descriptions of New Species, Part 2.

By A. W. B. POWELL, Auckland Museum.

Genus **SEPTIFER** Recluz, 1848.

Septifer cf. bilocularis Linn.

1758—*Mytilus bilocularis* Linn. Syst. Nat. 10th ed., p. 705 Indian Ocean.

A juvenile valve in fresh condition was obtained by Mr. Gordon Williams from the stomach contents of fish taken in 45 fathoms off Mayor Island, Bay of Plenty. It is 3.5 mm. in length and 3.2 mm. in height. The fish was a tarakihi (*Dactylopagrus macropterus* Forster).

The occurrence of this widespread Indo-West Pacific coral dwelling mussel in New Zealand waters is surprising, but small valves similar to the New Zealand example are not uncommon in a dredging from 10-30 metres off Sunday Island, Kermadecs.

Although the New Zealand specimen is very small it shows the unmistakable characteristics of the genus; i.e., variegated blue, green and reddish brown coloration, crenulated internal edge of the shell, short hinge on an internal ledge, muscle shelf behind the hinge and external sculpture of radiating closely-packed flattened ridges.

The muscle shelf is only half developed in this juvenile shell. It extends as a triangular plate from the ventral margin, but in some slightly larger Kermadec specimens the shelf extends two-thirds of the way across.

The excellent condition of the Mayor Island valve indicates that it could not have been long in the fish's stomach and must have been taken in the vicinity, thus ruling out the possibility of the fish having migrated from warmer seas with the shell in its stomach.

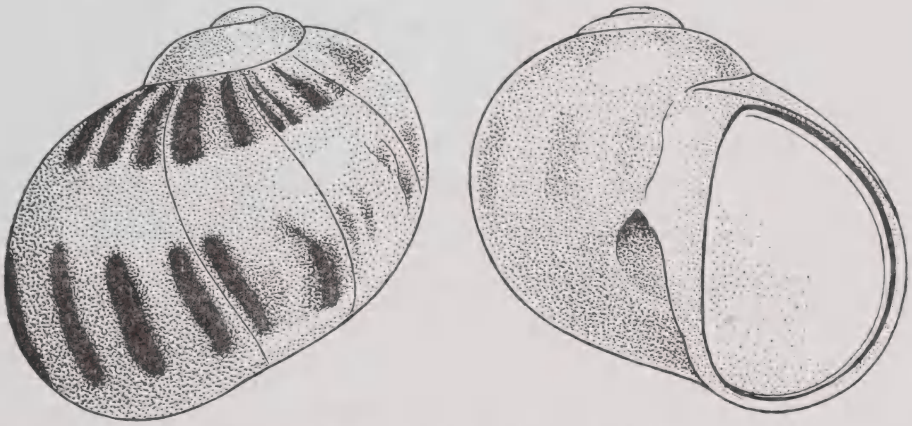
Proxiuber hulmei n. sp.

Shell of similar size to *australis* but proportionately broader, not so globose, with a distinctive colour pattern of two broad spiral zones of rectangular axial dark reddish-brown markings on a white ground covered by a very thin buff epidermis. Umbilicus a more convex crescent than in *maoria*, widely open, although half filled by the funicle and columellar callus. The two colour zones are both broad, the first subsutural and the second peripheral. They are separated by a clear space equal to half the width of a colour zone and the lower part of the base, almost equal to the width of a colour zone, is clear also. The surface is smooth and glossy, with faint, closely-spaced axial growth lines. The operculum is calcareous, smooth, white, paucispiral with two faint grooves margining the outer edge.

Height, 4.2 mm.; diameter, 4.5 mm. (Holotype).

Locality: Obtained from an Auckland trawler, exact locality and station not known.

Holotype: Presented to the Auckland Museum by Master S. G. Hulme.



Proxiuber hulmei n. sp. 4.2 mm. x 4.5 mm.

Genus **MYSTICONCHA** Allan, 1936.

Mysticoncha harrisonae Powell.

1946—*Mysticoncha harrisonae* Powell. *Rec. Auck. Inst. Mus.* 3 (2) p. 144.

Holotype: Lowrie's Beach, The Neck, Stewart Island. Powell collection, Auckland.

Two further examples of this species are now know. (1) 60 fathoms east of Stewart Island in stomach of blue cod (Mr. T. E. Jensen), (2) Pohara Beach, near Takaka, Nelson (the late Mr. W. V. Hadfield).

Cabestana (Cymatilesta) otagoensis n. sp. Pl. 39, fig. 1.

Shell large for the *waterhousei* group, slender, solid. Protoconch missing. Early whorls with two bifid, beaded prominent spiral keels, uppermost medial and four secondary beaded spiral cords, two above the medial keel, one between the keels and one below. On the antepenultimate the secondary spirals increase to four above the medial keel and two below the lower keel. On the body-whorl there are about 13 primary bifid spirals and a single cord in each interspace. Varices prominent, flange-like, spaced at two-thirds of a whorl intervals. Intervariceal axials weak, six to seven in number, unequally spaced, always bunched over two-thirds of the distance, leaving a clear space before the next varix commences. Height of spire about four-fifths height of aperture plus canal. Colour buff, intercostal spaces on the varices banded with pale reddish brown. Operculum ovate-pyriform with a terminal nucleus. Epidermis completely worn off.

Height (actual), 93.0 mm. (estimated), 94.0 mm.; diameter, 46.0 mm.

Locality: 10 miles north of Moeraki, Otago, 45 fathoms.

Holotype: Auckland Museum. Presented by Captain J. Black.

This species belongs to the *debilior* line rather than to the *waterhousei* line. The characteristic features are (a) the varices curving upwards and clasping the preceding whorl almost to the height of the lower keel and (b) the curious bunching of the axials in the intervariceal spaces.

In the Castlecliffian *debilior* Finlay, 1930, there are four bunched axials per intervariceal space compared with six or seven in *otagoensis*.

A shell washed up at Hokeo Beach, Levin, has the characteristic four bunched axials of *debilior*. Shells of a number of species judged to be derived from Pliocene beds are not uncommon on the Manawatu beaches. *Cabestana manawatuna* Fleming, 1943, from Locality 2492, Tahoraiti (S.W.) S.D., Lower Nukumaruan, seems to be ancestral to *debilior* rather than to *waterhousei*.

Mayena australasia blacki n. subsp. Pl. 39, fig. 2.

Shell larger than the typical species, prominently shouldered. Whorls angled medially, scarcely keeled and bearing bluntly rounded nodules, seven or eight between varices. There is no second or sutural angulation. Surface sculpture of dense spiral lirations and weak low primary spirals, two or three on the shoulder and about five on the body-whorl and base. Spire taller than aperture plus canal. Aperture strengthened with a heavy varix, strongly dentate within and with a massive parietal tubercle. Canal short, slightly oblique but little recurved. Colour pinkish buff obscurely maculated with pale reddish-brown. Varices banded with light purplish brown, and white where crossed by the weak primary spirals. Labial callus and interior of aperture porcellanous white. Epidermis yellowish-brown, densely axially lamellated, the lamellae crowded with short bristles.

Height (actual), 121.0 mm. (estimated), 124 mm.; diameter, 62.5 mm. (holotype).

Height (actual), 118.5 mm.; diameter, 59.5 mm.

Locality: Off Eastern Otago in 60-70 fathoms.

Holotype: Auckland Museum. Presented by Captain J. Black.

Two large examples of a *Mayena* from Bluff oyster boats, taken in 10 to 15 fathoms Foveaux Strait, resemble Northland shallow water *australasia* except for a relatively taller spire and weak numerous nodules (10-14 between varices) confined to the single peripheral angulation. When more material is available the Foveaux Strait form may be separable from typical *australasia*.

The relationship of *blacki* appears to be with this shallow-water Forsterian form of *australasia* rather than with subspecies *vossi* Powell, 1952, from 70 fathoms off Mayor Island, Bay of Plenty.

Other interesting records of warm-water *Cymatiidae* in the Forsterian are:—

Ranella multinodosa (Bucknill), off Eastern Otago, 60-70 fathoms.

Cabestana (Cymatilesta) spengleri (Perry), Foveaux Strait, oyster dredge (Mrs. R. H. Harrison) and (Mrs. E. Smith).

Cabestana (Cymatilesta) otagoensis n. sp., 45 fathoms, 10 miles north of Moeraki.

Genus **EMOZAMIA** Iredale, 1929.

Type (o.d.): *Murex licinus* Hedley and Petterd, 1906.

Emozamia licina (Hedley and Petterd). Pl. 39, figs. 5-7.

1906—*Murex licinus* Hedley and Petterd, Rec. Austr. Mus. 6 (3), p. 219, Pl. 37, fig. 6.

1929—*Emozamia licina*: Iredale, Rec. Austr. Mus. 17 (4), p. 185.

Holotype: Off Sydney, New South Wales, 250 fathoms.

The New Zealand specimen described below and figured (Plate 39, fig. 7) is probably identical with the New South Wales species. It is a rare shell in New South Wales collections, but through the courtesy of Miss Gertrude Thornley and Mr. C. F. Laseron, both of Sydney, I have two specimens on loan for comparison with the New Zealand shell. One of these is from Bateman's Bay, 60 fathoms, and the other Port Stephens, 30-40 fathoms.

The secondary or intermediate spirals are absent in Hedley's drawing of the holotype, weak in the Bateman's Bay and New Zealand specimens and strongly developed in the Port Stephens example. There is insufficient material to evaluate these differences, so, for the present, only one species is admitted. Following is a description of the New Zealand shell:—

Shell small, lightly built, broadly rounded, with a low spire and sculptured with vertical, low, rather narrow fluted varices, eight per whorl. On the spire-whorls there is a single rounded spiral cord and on the body-whorl the addition of five similar cords. There is a weak secondary spiral thread between the suture and the peripheral cord and one between each pair on the body-whorl. The cords do not cross the varices but form into a weak recurved spinose process at the crest of each varix. The surface of the shell is otherwise smooth and the colour uniformly pale pinkish-buff. Aperture relatively large, broadly-ovate. Anterior canal, partially closed, broad at the base but rapidly tapered, recurved and about one-third the height of the aperture in length. Fasciole narrowly arched, strongly imbricated and with a narrow false umbilicus partially bridged by the almost free parietal callus.

Height, 16.0 mm.; diameter, 12.0 mm.

Locality: 46-82 fathoms N.N.E. of Mayor Island, Bay of Plenty (S. M. Hovell); obtained from an Auckland trawler, exact locality and station not known (S. G. Hulme).

Genus **IREDALINA** Finlay, 1926.

The holotype of *Iredalina mirabilis* Finlay is a large, slender shell with a narrowly angled attenuated spire. It remained unique for over twenty-five years, but dead encrusted shells of *Iredalina* have been taken recently in some quantity by Captain J. Black, of the Dunedin trawler "Taiaroa."

In 1950 (Rec. Auck. Inst. Mus. 4 (1), p. 81) I recorded four specimens from the above source and noted that these had a shorter spire and a more inflated body-whorl. Dell (1951, Rec. Cant. Mus. 6 (1), p. 57) also recorded a similar squat inflated example from 80 fathoms off Banks Peninsula.

The considerable number of Eastern Otago shells I have now examined show that there are two forms or species of *Iredalina* on the eastern Otago shelf and that the genotype, *mirabilis* is much the rarer of the two.

At first I was inclined to consider the holotype to be an abnormality exhibiting elongation resultant from some early injury, but further examples of the slender typical *mirabilis* show that there is a constant difference between the slender and squat shells that is not related to shape.

All five typical *mirabilis* I have examined are lacking in sculpture on the pillar and all of the thirty or more examples of the squat species have about ten slightly raised spiral threads running around the pillar and terminating at the broad shallow oblique anterior notch. This pillar sculpture was noted by Dell (l.c.) also in his Banks Peninsula shell.

Iredalina mirabilis Finlay. Pl. 39, fig. 3.

1926—*Iredalina mirabilis* Finlay, Proc. Mal. Soc. 17, pp. 59-62.

Localities: 40 fathoms off Otago Heads (Holotype); 58 fathoms off Waitaki River (Captain J. Black).

Holotype: Finlay collection, Auckland Museum.

Shell large, always slender with a spire angle of 32-33° and no spiral threads on the pillar. The colour is indicated as uniformly salmon-pink without colour pattern and with a high glaze in life. No living examples have been taken.

Height.	Diameter	Ht. ÷ Diam.	Ht. ÷ Ht. Aperture.	Spire Angle.
140.0 mm.	48.0 mm.	2.91	1.97	32° *
147.0 mm.	48.0 mm.	3.06	1.98	33°
120.0 mm.	40.5 mm.	2.96	1.93	32°
112.0 mm.	39.5 mm.	2.83	1.89	32°

* = Holotype.

Iredalina aurantia n. sp. Pl. 39, fig. 4.

1950—*Iredalina mirabilis:* Powell, Rec. Auck. Inst. Mus. 4 (1), p. 81.

1951—*Iredalina mirabilis:* Dell, Rec. Cant. Mus. 6 (1), p. 57.

Localities: 50-60 fathoms off Cape Saunders; off eastern Otago, 60-70 fathoms (Holotype) (Captain J. Black); 80 fathoms off Banks Peninsula.

Shell smaller than *mirabilis*, more inflated with a spire angle of 44-52° and about ten slightly raised spiral threads running round the pillar. The colour, indicated by one very well preserved example from 55 fathoms off Cape Saunders, is uniformly salmon-pink with a high glaze. It is a very similar colour to that of the well known Fijian orange cowry, *Cypraea aurantium* Linn.

The station of *Iredalina* is still problematical. They must occur adjacent to the 60-70 fathoms hard bottom where the shells are trawled. The 55 fathoms Cape Saunders shell is the best preserved one so far taken, and this shell was not long dead, having full colour, original glaze, and was neither worm eaten nor encrusted.

Height.	Diameter	Ht. ÷ Diam.	Ht. ÷ Ht. Aperture.	Spire Angle.
77.0 mm.	35.0 mm.	2.17	1.68	52° (A)
87.0 mm.	38.5 mm.	2.26	1.58	50° (B)
109.0 mm.	49.0 mm.	2.22	1.60	51° (B)*
116.0 mm.	46.0 mm.	2.52	1.75	50° (B)
116.0 mm.	50.0 mm.	2.30	1.61	46° (B)
116.0 mm.	52.0 mm.	2.23	1.61	51° (B)
117.0 mm.	50.0 mm.	2.34	1.54	58° (B)
119.0 mm.	49.0 mm.	2.42	1.70	44° (C)

A = 80 fathoms off Banks Peninsula, B = 60-70 fathoms off Eastern Otago, C = 50-60 fathoms off Cape Saunders. * = Holotype.

Pachymelon (Palomelon) smithi Powell.

1950—*Pachymelon (Palomelon) smithi* Powell. Rec. Auck. Inst. Mus. 4 (1), p. 81.

Holotype: Off Eastern Otago ca. 70 fathoms. Auckland Museum.

A living specimen was trawled by Captain Black in 55-60 fathoms south of Timaru. The ground colour is pale orange with a conspicuous stain of bright purple around the fasciole and the suture at the termination of the last whorl. Most shells are devoid of other markings, but some have a sparse pattern of narrow angular streaks in dark reddish-brown arranged in three bands, one subsutural, one medial, and the third just above the fasciole.

Height.	Diameter.
118.0 mm.	45.5 mm. (Holotype)
113.0 mm.	44.0 mm.
73.0 mm.	29.0 mm.

The third specimen is one of several that have a well callused outer lip and are obviously adult. The axial sculpture is more pronounced and extends on to the body-whorl but otherwise there are no differences. The phenomenon of nanism is not uncommon among the deep water volutes of both New Zealand and Australia.

Fig. 1. *Cabcstana (Cymatilesta) otagoensis* n. sp. Holotype 93 x 46 mm.
Fig. 2. *Mayena australasia blacki* n. subsp. Holotype 121 x 62.5 mm.
Fig. 3. *Iredalina mirabilis* Finlay. Holotype 140 x 48 mm.
Fig. 4. *Iredalina aurantia* n. sp. Holotype 109 x 49 mm.
Fig. 5. *Emozamia licina* (Hedley and Petterd), Bateman's Bay, 60 fathoms, New South Wales; Fig. 6. Port Stephens, 30-40 fathoms, New South Wales; Fig. 7. 46-82 fathoms N.N.E. of Mayor Island, Bay of Plenty, New Zealand. 16 x 12 mm. (All three figures uniform magnification).